

REMARKS

Claims 19, 28, and 40 have been amended in a sincere attempt to advance prosecution. The claims before the Examiner remain claims 19 to 53.

The allowance of claims 48 to 50 and the indication that claims 45 to 47 contain allowable subject matter are noted with appreciation. It is respectfully submitted for reasons developed below that all pending claims are allowable.

Claim 19 has been amended to restrict the Ar3 group to a substituted or unsubstituted phenylene group and to define Y as "a substituted aryl group substituted with an electron-donating substituent." Claim 28 has been amended to correct the spelling of "said" in one location and claim 40 has been revised to indicate that the substituents listed therein apply to moieties R1 to R6. The Examiner is referred to the related discussion in the specification at page 31. Although it is acknowledged that there appeared, in error at the top of the page, a definition of only the R1 and R2 groups, it is believed clear from a reading of the application as a whole and particularly the paragraph at page 31, lines 15 to 19 that all moieties should have been identified and discussed at the top of page 31.

In view of these changes, it is believed that the rejection of claims 19 and 40 under the second paragraph of 35 USC 112 have been overcome. If the Examiner, after considering the changes and appropriate remarks, believes that other changes are required, she is asked to contact the undersigned.

The rejection of claim 19 under 35 USC 103 as unpatentable over Nakaya et al. '557, if applied to the claim as amended, is respectfully traversed. Applicants appreciate the Examiner's thoroughness and detail in developing her position, but is respectfully submitted that in view of the present changes to claim 19, that claim patentably defines over the cited art. As indicated above, the claim has been revised to specify that the Ar3 moiety is a substituted or unsubstituted phenylene. The reference, as the Examiner acknowledges, shows compounds with a biphenyl group bonded to two nitrogens.

A purpose of the present invention is to provide a charge-transport luminescent material having, within a molecule, a portion that contributes to charge transport and a portion that contributes to luminescence. As a result of the change to claim 19, where Ar3 is now a substituted or unsubstituted phenylene group, the portion N-Ar3-N within the molecule of the claim 19 compounds does not rotate. The lack of rotation facilitates

migration of a hole from the charge transport group to a group contributing to luminescence. As such, a high electroluminescent efficiency is achieved. See also the discussion in the specification at page 20, lines 10 to 22 discussing the advantages of having a phenylene group so located.

Nakaya et al. '557, as already mentioned, teaches compounds with a biphenyl group bonded to two nitrogen atoms. In such a case the phenylene group adjacent thereto rotates 90° and thus, within a molecule, it is difficult for a hole to move through the biphenyl group.

The Nakaya et al. '557 compounds are used for a hole injecting and a transporting layer. Therefore, within a molecule a hole need not move through the biphenyl group and it is sufficient merely to have a structure in which the hole moves to another molecule. It is believed apparent from the fact that in the Nakaya et al. '557 compounds, the aryl bonded to one N and the aryl bonded to the other N have basically the same structure. Claim 19 patentably defines thereover. As such, the rejection should be withdrawn.

The rejection of claims 20, 21, 43, 44, and 51 to 53 under 35 USC 103 as unpatentable over Nakaya et al. '557 in view of VanSlyke et al. '432 is also respectfully traversed.

The Examiner acknowledges in the Office Action that the primary reference compounds differ from those of the present claims as a result of the phenylene versus biphenyl difference. The Examiner cites VanSlyke et al. '432 for showing compounds with hole transporting capabilities wherein the compounds have two diarylene substituents joined by an arylene ring, such as a phenylene moiety having 1 to 4 phenylene rings. The Examiner states that the person of ordinary skill in the art "would reasonably have expected" that compounds similar to those of the primary reference "would have properties similar to" the properties of the compounds of the primary reference.

Applicants respectfully submit that VanSlyke et al. '432 does not teach or suggest to the person of ordinary skill in the art that one would be able simultaneously to impart hole transport and luminescence properties to one substance. In the formulae depicted at column 8, lines 39 to 68 of the reference, when n equals 1 it is possible for the hole to move through the N-arylene-N group. The reference, however, does not suggest imparting hole transport properties and luminescence properties

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to one substance simultaneously. Thus, even if a hole moves through the N-arylene-N moiety within a molecule where there are no hole transport property groups or luminescence property groups, it is impossible to achieve a compound having high electrode luminescent sufficiency. Thus, the rejection should be withdrawn.

The rejection of claims 22 to 42 under the judicially created doctrine of obviousness-type double patenting over various specified claims of patent 6,682,832 B2 is noted; enclosed herewith is a Terminal Disclaimer that overcomes the rejections.

The Examiner is thanked for acknowledging that copies of certified copies of the priority documents were provided by the International Bureau in the parent case and for listing references noted in an Information Disclosure Statement.

In view of the foregoing revisions and remarks, it is respectfully submitted that all of claims 19 to 53 are in condition for allowance and a USPTO paper to those ends is earnestly solicited.

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The Examiner is requested to telephone the undersigned if additional changes are required in the case prior to allowance.

Respectfully submitted,

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Enclosure:

Terminal Disclaimer

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